

REMARKS

Claims 1-11 and 13-21 are pending. Claims 1-21 are rejected under 35 USC §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

The claims have been amended to further clarify the patentable subject matter of the invention. For example, claim 1 has been amended to specify the ear phone being in a second earpiece that includes an insertion portion that inserts into a second ear canal of a user. This is clearly shown in FIGS. 1, 4, and 6. Claim 7 has been amended to more clearly specify the nipple earpieces shown in FIGS. 6 and 7. Note, the microphone 702 is shown in FIG. 7 located in the earpiece housing 700. Claim 13 has been amended to clarify that the second ear piece is adapted for inserting into a second ear, not a first ear.

For the foregoing reasons, reconsideration and allowance of claims 1-11 and 13-21 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.



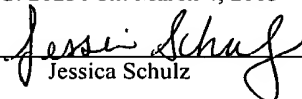
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PATENT TRADEMARK OFFICE

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

1. (Amended) A full duplex audio headset, comprising:
a first ear piece including a rigid housing for coupling to a headband, the ear piece also including an insertion portion for inserting inside a first ear canal and containing a microphone configured to pickup voice signals of a headset operator output from [an] a first ear canal and convert the voice signals into electrical transmit signals and output the electrical transmit signals from the headset as an electrical representation of the voice signals of the headset operator; and
a second ear piece including a rigid housing for coupling to the headband, the second ear piece also including an insertion portion for inserting inside a second ear canal and containing an ear phone for converting electrical receive signals received from an external device coupled to the audio headset into audio output sounds and outputting the audio output sounds into the [same or a different] second ear canal of the headset operator so that the headset operator can hear the audio output sounds.
2. An audio headset according to claim 1 including an acoustical isolator substantially isolating bone conduction vibrations absorbed by the housing from the microphone contained inside the housing by suspending the microphone inside the first ear piece away from walls of the rigid housing.
3. An audio headset according to claim 1 wherein the acoustical isolator comprises a foam material, the acoustical isolator having sides extending against rigid inside walls of the rigid housing and a center portion holding the microphone away from the inside walls of the housing.
4. (Amended) An audio headset according to claim 1 wherein the first ear piece includes only a single microphone for locating in [an external] the first ear canal [in a first ear of a user], the first ear piece containing no other microphones or ear phones and the second ear piece includes only a single ear phone for locating in [a] the second ear of the user, the second ear piece containing no other microphones or earphones.

5. An audio headset according to claim 1 including a first wire coupled from the microphone to a first ring connection for outputting the transmit signals, a second wire coupled from the earphone to a second tip connection for receiving the receive signals, and a third wire for coupling the microphone and the earphone to a ground connection.

6. An audio headset according to claim 1 wherein the first and second ear piece each comprise circular disc portions with flat faces that rest inside the ear canals, neck portions that connect the disc portions to headset frames, and a headband that connect to the headset frames, the microphone and ear phone located in the circular disc portions.

7. (Amended) An audio headset according to claim 1 wherein the first and second ear piece each [comprise] includes a nipple having a cone-shaped stalk portion [that connects to an ear piece housing] and an umbrella-shaped shroud made of a flexible material that extends from the stalk portion and conforms to a shape of the ear canal [, the microphone and ear phone located in the ear piece housing].

8. An audio headset according to claim 1 wherein the microphone includes a piezo electric transducer.

9. An audio headset according to claim 8 including a transistor having a first gating terminal coupled to a first terminal of the transducer, a second output terminal for outputting the transmit signal, and a third terminal for coupling to a ground connection.

10. An audio headset according to claim 9 including a filter circuit coupled across the second and third terminals of the transistor for filtering out low audio frequencies from the transmit signals, the filter including an inductor and a capacitor coupled in series across the second and third terminals.

11. An audio headset according to claim 1 including a filter circuit that filters out low frequencies associated with bone conduction from the electrical transmit signals.

12. Cancelled

13. (Amended) A method for operating a full duplex headset, comprising:
adapting a first ear piece for inserting into a first ear and receiving audio signals from a voice of a user while located within the first ear of the user providing an audio talk source for the user;
converting the received audio signals from the first ear piece into transmit signals for outputting through a first connector as an audio output signal;
adapting a second ear piece for inserting into a [first] second ear and receiving receive signals through a second connector while located within the second ear of the user providing an audio listening source for the user;
adapting a headband to hold the first and second ear pieces in the first and second ear;
and
outputting the receive signals through a transducer in the second ear piece into the second ear of the user.

14. (Amended) A method according to claim 13 including suspending a microphone inside the first earpiece with a foam material to acoustically isolate the microphone in the first ear piece from audio signals attributed to bone conduction.

15. A method according to claim 14 including using an electronic filter to further filter audio signal attributed to bone conduction.

16. A method according to claim 13 including:
outputting the transmit signals from a first ring wire in the headset;
receiving the receive signals from a second tip wire in the headset; and
grounding the first ear piece and the second ear piece with a third wire in the headset.

17. A method according to claim 16 including terminating the first, second and third wires with separate terminals on an external connector for coupling to audio telephony or recording devices.

18. A method according to claim 13 including using an output of a piezo electric transducer in the first ear piece for generating the transmit signals.

19. A method according to claim 18 including using the transmit signal output from the piezo electric transducer for controlling a transistor output and using the transistor output as the transmit signals.

20. A method according to claim 19 including electrically filtering out low audio frequencies from the transmit signals.

21. A method according to claim 13 including:
locating only a single microphone in the first ear piece without providing any other microphones or earphones in the first ear piece;
locating only a single earphone in the second ear piece without providing any other microphones or earphones in the second ear piece;
inserting the first and second ear piece into opposite external ear canals of the user;
and
positioning the microphone within the first ear piece for converting voice signals within the inserted external ear canal into the transmit signals.